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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/585,665

11/13/2007

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EXAMINER

LEO, LEONARD R

ART UNIT

PAPER NUMBER

3744

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,665	<b>Applicant(s)</b> KRAMER, WOLFGANG	
	<b>Examiner</b> Leonard R. Leo	<b>Art Unit</b> 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

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**DETAILED ACTION*****Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “the profile has an approximately V-shaped cross section” in claim 5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

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***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification lacks an adequate written description of the invention. There is no basis for “the profile has an approximately V-shaped cross section which is bent once”.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There is an inconsistency between the language in the preamble and the body of the claim, thereby making the scope of the claim unclear. Applicant is required to clarify whether the claim is intended to be drawn to the subcombination or the combination, and amend the claim to be consistent with the intent. For example, claim 1 appears to recite a fin, i.e. subcombination, whereas claim 11 appears to recite a heat exchanger with a fin, i.e. combination.

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Regarding claim 1, the phrase “in particular” in lines 1-2 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 4, the phrase “for example” in line 2 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Regarding claim 6, the phrase “i.e.” in line 6 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). Furthermore, the claim lacks an inequality symbol for the expression in line 7, which renders the claim indefinite.

Claims 7-8 recites the limitation “the angles  $\alpha s$  and  $\beta s$ ” in line 2. There is insufficient antecedent basis for this limitation in the claim. Furthermore, the claims lack an inequality symbol on the left side of the expression thereof, which renders the claim indefinite.

Claims 9-10 recites the limitation “the angles  $\alpha z$  and  $\beta z$ ” in line 2. There is insufficient antecedent basis for this limitation in the claim. Furthermore, the claims lack an inequality symbol on the left side of the expression thereof, which renders the claim indefinite.

Regarding claim 11, the phrase “such as” in line 1 renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 4-5 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Urushibara. Figures 1 and 5 of Urushibara discloses a fin 2 arranged between connected flat tubes 3 of the heat exchanger, and having gills 1 with an approximately V-shaped cross section to reduce pressure drop (abstract purpose).

Regarding claim 4, Figure 7 discloses the profile is bent twice.

Claims 1-2 and 5 as best understood are rejected under 35 U.S.C. 102(b) as being anticipated by Maruo. Figures 1 and 5 of Maruo discloses a fin 4 arranged between connected flat tubes 1 of the heat exchanger, and having gills 10a with an approximately V-shaped cross section to improve buckling strength (abstract purpose).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claims 1-4 and 6-11 as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Hatada et al in view of Kadle.

Hatada et al discloses all the claimed limitations except flat tubes.

Kadle discloses a heat exchanger comprising header boxes 12, 14, tubes and fins 30 with gills 36, wherein the tubes may be round 46 (Figures 5-7) or flat 26 (Figures 1-2) for the purpose of a desired heat exchange.

Since Hatada et al and Kadle are both from the same field of endeavor and/or analogous art, the purpose disclosed by Kadle would have been recognized in the pertinent art of Hatada et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Hatada et al flat tubes for the purpose of a desired heat exchange as recognized by Kadle. Furthermore, it would have been obvious to one of ordinary skill in the art to simply substitute one known element for another to obtain predictable results.

*KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395 (2007)

Regarding claims 3 and 6, Figure 10 of Hatada et al discloses gills 45 having a S-shaped cross section.

Regarding claim 4, Figure 8 of Hatada et al discloses gills 25 having an approximately Z-shaped cross section.

Regarding claims 7-10, the claim limitations are believed met by Hatada et al. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ any deflection and/or flow angle, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*,

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617 F.2d 272, 205 USPQ 215 (CCPA 1980). As recognized by the prior art, the angle affects the flow characteristics, which directly relate to pressure drop and heat transfer.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on (571) 272-4834. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/ Leonard R. Leo /  
PRIMARY EXAMINER  
ART UNIT 3744

June 1, 2010